

SOCIETY OF VERTEBRATE PALEONTOLOGY

Field Trip -- Annual Meeting

Los Angeles, Calif. October 31, 1954

Two well-known areas have been selected for observation -- the late Eocene beds of the Sespe formation on "Pearson Ranch," Simi Valley (now known as the Wharton Ranch) and the Tick and Mint Canyon faunas in the Soledad Basin. We have Bob Wilson on hand to discuss the Sespe area as a former participant in field work there, and Dick Jahns, who has first-hand knowledge of the Mint Canyon region.

En route to Soledad Basin localities via the Hollywood Freeway, we pass through the Santa Monica Mountains. The highway courses through a deep canyon (Cahuenga) cutting extensive sections of the Topanga formation (Middle Miocene), including massive ss. congl., sh., intercalated with intrusive and extrusive basalt.

We pass through San Fernando and continue via Highways 99 and 6 and see thick exposures of the Pico formation (Pliocene -- marine, fine and coarse-grained, brown ss.) and the overlying Saugus (terrestrial, light-colored congl. and ss.). The Soledad Basin begins after we cross the San Gabriel fault (north of the town of Saugus). The Saugus formation is dominant until we proceed well up "stream" in San Francisquito Canyon and see the undescribed Mint Canyon formation localities (CIT 97, 442 and 443) that fall in the lower 1/4 to 1/2 of the Mint Canyon formation and appear to be late Barstovian in age.

Of historical interest is the site of the ruined St. Francis Dam, which was built across San Francisquito Canyon and rested upon the insecure Vasquez (Olig.?) and Pelona schists (pre Cret.). More than 500 lives were lost when this ill-conceived dam broke without warning in March, 1928.

We return to Dry Canyon and Bouquet Canyon junction and proceed to points along the highway at which the Mint and Tick Canyon localities can be viewed. If time permits, we shall view the areas more closely from Vasquez Canyon. See attached maps (Muehlberger, et al, and Jahns).

We retrace our route over 6 and 99 and follow Highway 118 to Chatsworth in the San Fernando Valley. After passing through Chatsworth, the highway winds through Santa Susana Pass, where there are excellent exposures of the Chico formation (massive brown ss. of Upper Cret. Age) that form the rugged terrain (often pictured in western movie serials).

Our next stop will be Sespe localities at the Wharton Ranch, the site of the famous Cal. Tech. Loc. 150. See included faunal lists and maps.

T. D.

FAUNAL LISTS -- TICK CANYON AND MINT CANYON

FAUNAS OF SOUTHERN CALIFORNIA

Compiled by Theodore Downs,*
Los Angeles County Museum

The faunal lists presented are in chronological order -- beginning with the earliest Tick Canyon (late Arikareean; early Miocene) and terminating with the invertebrates found in the Castaic (formerly termed "Modelo") formation.

Since there has been published controversy over the identification and age assignment of the Mint Canyon fauna (Maxson, 1930; Stirton, 1933; Jahns, 1940), I have included both Maxson's and Stirton's identifications. Some animals described were not given locality designation in the published accounts -- these have been traced in the records and included in this report; thus a fairly complete listing of the contents of late Mint Canyon formation localities is presented. The stratigraphic position is indicated where feasible, as based on data derived from Jahns (1940), and interpolation. The San Francisquito Canyon specimens have not been described; they include the material referred by Durham, Jahns and Savage (1954) as older Mint Canyon mammals from San Francisquito Canyon (and possibly Bouquet Canyon). I am not aware of the location or character of the material from Bouquet Canyon. Unfortunately some fossils from Mint Canyon, including some of these undescribed forms, are, at present, not readily available for study.

There is a need for review of all evidence and description of new materials from the Mint Canyon area -- so that clarification can be made as to definite faunal subdivisions of the Mint Canyon formation.

Early or Middle Miocene -- Tick Canyon Formation and Fauna

Age: late Arikareean or early Hemingfordian

Locality CIT 201
(Tick Canyon: At or Bt of Jahns, 1940 map)

Class Aves:

FALCONIFORMES (close to buteonine hawks and eagles)
Microrax stocki Howard

Class Mammalia:

RODENTIA

Heteromyid, prob. n. gen. and sp.
Archaeolagus (?) sp.

* With the gratefully acknowledged aid of Dr. R. H. Jahns,
Dr. D. I. Axelrod and Mr. William Otto

Early or Middle Miocene -- Tick Canyon Formation and Fauna (Cont'd.)

Class Mammalia (Cont'd.):

PERISSODACTYLA

Parahippus maxsoni Jahns

ARTIODACTYLA

Merychys calaminthus Jahns

Miolabis californicus Maxson

U.C. 3554

(S.E. of CIT Loc. 201, off maps)

Class Mammalia

Maxson*

Stirton*

PERISSODACTYLA

Parahippus ? (Archaeohippus)

Parahippus sp.

near mourningi

Jahns (1940) refers these

to P. maxsoni and

states from "same beds" as

P. Maxsoni

U.C. Loc. 3568

(east of U.C. 3554)

Maxson

Stirton

ARTIODACTYLA

Miolabis californicus

Miolabis californicus

Jahns refers lower teeth

Notes, from bottom

from loc. 201

of section

Late Miocene and Early Pliocene -- Mint Canyon Formation

Age: late Barstovian (?) **

Localities: San Francisquito Canyon (undescribed fauna) ***

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- * Throughout list this refers to Maxson (1930) and Stirton (1933).
 ** Stirton (1936) stated there is a possibility that the lower part of the Mint Canyon fm. is Miocene.
 *** Also includes some reported Bouquet Canyon material -- not seen (T.D.). The localities considered to be basal $\frac{1}{4}$ to $\frac{1}{2}$ of Mint Canyon fm. (see Durham, Jahns and Savage, 1954). See Muehlberger, et al, compiled map extract for localities.

CIT 97
(Muelberger, et al, map)

Maxson

Stirton

PERISSODACTYLA
Merychippus sp.

?Nannipus -- like N. gratum
from clarendon but less
hypsodont

CIT 442
(Muelberger, et al, map)

No described fossils. Examination of material in CIT collections indicates presence of:

PERISSODACTYLA
Merychippus sp., smaller and shorter crowned than
M. calamarius and intermontanus and less complex
pattern than calamarius (a partial maxillary series).

Phalangeal material -- both large and small horse.

?Aphelops -- moderate size rhino tooth.

ARTIODACTYLA
? Procamelus -- larger than Miolabis -- nearer size of
Procamelus

CIT 443
(see map)

PERISSODACTYLA
Merychippus? An unworn M^3 , the size and probable height
of crown of Merychippus taken at CIT 442.

Early Pliocene* -- Mint Canyon Formation

Age: Clarendonian

U.C. 3555
(member 6, 1485 feet above Tick Canyon fm.,
see loc. T/or U on Jahns map)**

* Following the general consensus of paleomammalogists today.

** Thickness derived from Jahns (1940) measured section.

Maxson

Stirton

PERISSODACTYLA

Merychippus (Protohippus)

Pliohippus sp.

intermontanus

Hipparion? Sp. A

Same

ARTIODACTYLA

Oreodont cf Merychys

?Merycodus

U.C. 3571

(member 9, east of mapped area, 477 ft. above member 6)

Sparsely fossiliferous

U.C. 3564

(member 14, 538 ft. above member 9)

Maxson

Stirton

PERISSODACTYLA

Hipparion? sp. A

Hipparion

L.A.M. 1006

(member 14, same as CIT 103, 44 ft. above member 9,
see M, N, P or R, Jahns)

Maxson

Stirton

PERISSODACTYLA

Hipparion? near mohavense
Merriam

Hipparion cf. mohavense

CIT 103

(member 14, same as L.A.M. 1006)

Maxson

Stirton

ARTIODACTYLA

Merycodus near necatus Leidy

not discussed or seen

CIT 100

(member 16, 177 ft. above member 14, see I, Jahns)

Maxson

Stirton

CARNIVORA

Aelurodon sp.

Canidae

PERISSODACTYLA

Prochippus sp.

Plihippus sp.

Hipparion? near mohavense

Hipparion cf. mohavense

Merriam

Rhinocerotid indet

no comment

CIT 102

(member 19, 198 ft. above member 16, see G of Jahns)

Maxson

Stirton

PERISSODACTYLA

Hypolagus

No. 123

Not seen

PROBOSCIDEA

Trilophodon sp.

No. 120

Trilophodon sp.

Ricardo or Barstovian
(or later, T.D.)

Fossil Flora, Mint Canyon Formation

CIT 351

(not on maps), 352 and 353

Age: "late Miocene", Axelrod (1940)

"Fossil plants occur* just above the middle of the 4000-foot Mint Canyon section, and at the general stratigraphic level of the Mint Canyon local fauna." The largest collection is from Sand Canyon (loc. 351). "Live oaks (5 sp.) formed a dominant woodland and savanna about the basin, with associates of Ilex, Lyonothamnus, Populus, Juglans, Persea, Laurocerasus and Robinia. Nearby chaparral-covered slopes supported Ceanothus (6 sp.), Cercocarpus, Schmaltzia, Rhamnus, Fremontia, Quercus and Prunus. Thorn forest vegetation in the drier valleys included species of Bursera, Cardiospermum, Caesalpinia, Eysenhardtia, Passiflora, Pithecolobium and Thouinia. The flora shows relationship to modern vegetation in southern California, and to that now in the summer-wet southwestern portions

* Extract from unpublished MS. of D. I. Axelrod

"of North America. Rainfall ranged from 18 to 20 inches, distributed chiefly as summer showers and some winter rain. Winters were mild, and frosts were essentially absent. At this time the Mint Canyon basin was clearly a part of Mohavia, isolated from the coast by a topographic barrier."

CIT 99

(member 22, 259 ft. above member 19, see C or D, Jahns)

Maxson

Stirton

PERISSODACTYLA

Hipparion sp. B

Hipparion sp.?

CIT 101

(member 24, 452 ft. above member 22, see A or B, Jahns)

Maxson

Stirton

PERISSODACTYLA

Merychippus sumani Merriam

Hipparion cf. mohavense
Merriam

ARTIODACTYLA

Alticamelus? sp.

noncommittal

CIT 98

(south of Santa Clara River -- in Sand Canyon, not on map)

Maxson

Stirton

ARTIODACTYLA

Prosthenops sp.

?Prosthenops sp.

U.C. 3566

(not on map, probable upper member)

Maxson

Stirton

PERISSODACTYLA

Protophippus

Plihippus sp.

Fossil Invertebrates -- "Modelo", or newly named Castaic fm.
(see Winterer & Durham, 1954)

Age: late Miocene

Locality: see A & B, Jahns map; unconformably overlying the
Mint Canyon

Durham (1948 a and b), has stated that the molluscan and echinoid fossils from the Castaic ("Modelo") that overlies Mint Canyon indicate late Miocene age equal to parts of the Cierbo and Neroly stage or formations of middle California. Forams have been attributed to the upper Mohnian stage. Durham (1948 b) has concluded that "the Clarendonian age of the vertebrate paleontologists includes in its lower part the Mohnian and Delmontian stages of the foraminiferal sequence and the Briones, Cierbo, and Neroly of the molluscan sequence in terms of the vertebrate scale, very little time is represented by the Briones, Cierbo, and Neroly molluscan sequence and by the Mohnian-Delmontian foraminiferal sequence."

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To the vertebrate paleontologists the presence of Plihippus, Hipparion and Nannipus in particular, indicates early Pliocene or Clarendonian age for the mammals from the upper part of the Mint Canyon.

There is strong indication of Barstovian age mammals in the lower part of the Mint Canyon -- but the complete evidence is yet to be published for critical appraisal.

Paleobotanical material has been interpreted (Axelrod, 1940), to indicate late Miocene age (partially on the strength of Maxson's designation of late Miocene for the Mint Canyon fm.). However, Axelrod (1950, p. 286) has summarized the history of the desert flora of Mohavia (including the Mint Canyon flora) and states that this Madro-Tertiary flora (live oak woodland, chaparral and arid subtropical vegetation) dominated the present desert during Miocene time and persisted into Lower Pliocene time. Therefore there is no apparent serious discrepancy with mammalian concepts.

To come to reasonable agreement, the various disciplines must continue to establish their respective contributing parts of the evidence with accurate stratigraphic data and taxonomic identifications. Then, as Durham, Jahns and Savage. (1954) suggest, Lyellian epoch chronology and mammalian chronology may be brought into adjustment when epochal boundaries of the type sections of Europe are settled.

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